

Capital Structure and Financing of Small and Medium Sized Enterprises: Empirical Evidence from a Sri Lankan Survey

Menike, L.M.C.S.¹

Abstract

This paper presents an empirical examination of capital structure choices and financing of small and medium-sized enterprises (SMEs) in Sri Lanka. A survey was carried out based on 300 SMEs and the hypotheses formulated from pecking order and life cycle theories are tested on a number of univariate and multivariate logistic regression models. The results suggest that age, size, ownership structure, information asymmetry and level of intangible activity are important determinants of the capital structure of SMEs. It is evident that when firms become older and larger they accumulate enough fixed assets by eliminating informal asymmetry, they tend to acquire long term loans providing fixed assets as collaterals. The results also reveal that the industry-specific effects are important in the context of SME capital structures and SMEs in Metal and Wood industries are less likely to use internal finance while the SMEs in Textile industry are more likely to use long-term debts. The results support the Pecking Order Theory and the Life Cycle Theory.

Keywords: Capital Structure, Life Cycle Theory, Logistic Regression, Pecking Order Theory, Small and Medium Sized Enterprises, Sri Lanka

1. Introduction

Small and medium-sized enterprises (SMEs) are vital for the growth and development of the Sri Lankan economy because they encourage entrepreneurship, generate employment, reduce poverty and promote of backward linkages (Kayanulad and Quartey, 2000; Tagoe et al., 2005). SMEs in Sri Lanka play a vital role in the economy accounting for 82% of all firms, 20% - 40% of employment and about 20% of value added to the GDP (Abeyratne, 2005). Further, the SMEs supply goods and services to many companies that comprise the membership of the Board of Investment (BOI). Moreover according to Department of Census and Statistics (2003) about 90% of SMEs are scattered in rural areas of the country. Therefore, such SMEs have a high potential for rural sector development. As such the promoting the growth and competitiveness in SMEs will lead not only to growing social and economic returns internally but also to allow the private sector participation in the global economy. However, this growth process has been constrained by the limited availability and accessibility of financial resources to meet a variety of operational and investment needs within the SME sector. Both demand and supply side factors have constrained their share to this financing problem in the country. There is an extensive literature of the firm capital structure and the debt equity mix is one of the major topics in the literature on corporate finance. Demand side of SME financing are based on the well-established fact that the owners are extremely reluctant to give up control of their business and they try to meet their financing needs from a pecking order for which this study tries to examine the less studied demand side of capital structures of SMEs in the Sri Lankan context. The most widely accepted view of the small business capital structure is that of Burger and Udell's (1998) financial growth cycle model. Many other researchers have found that specific attributes of small firms impact the types of funds used to finance the firm's operations (Romano, et al., 2001). However, the Burger and Udell (1998) work, which proposes that optimal capital structures vary at specific points, seems to have captured the alternation of most researchers.

¹ Department of Accountancy & Finance, Sabaragamuwa University of Sri Lanka, Sri Lanka. Email: Imcsmenike@gmail.com

Further, Burger and Udell (1998) document that changes in optimal capital structure are a function of the firm size, age, and information availability. Myers (1984) and Myers and Majut (1984) presented the concept of optimal capital structure based on the Pecking Order Theory (POT) which suggests that firms will initially rely on internally generated funds, then they will turn to debt finance if additional funds are needed and finally they will issue equity to cover any remaining capital requirements². Discussions on the capital structure of SMEs have included industry effect as a determinant of capital structure (Hall et al., 2000, Johnsen and McMahan, 2005). Abor (2007) finds that SMEs capital structure varies across industries and those industries with high collateral value are often capable of attracting more long-term debt. Much of the attention on growth in the SMEs has focused on capital relating to financing are dominant in the small and young firms (Terpostra et al., 1993). Most of the researchers have found that inadequate financial resources as a primary cause of SME failure (Coleman, 2000). SMEs can be differentiated from larger firms with respect to their capital structure choices and they tend to rely on private equity markets which constraint the form of financing they be able to obtain. It is widely accepted that small firms have different optimal capital structures and are financed by various sources at different stages of their organizational lives (Burger and Udell, 1998). This study attempts to contribute to the existing literature focusing the debate on capital structure and financing behavior of SMEs from a developing country perspective and examines the capital structure and financing patterns³ that represents by Sri Lankan SMEs based on Pecking Order Theory and Life Cycle Model. However, there is a lack of such studies in Sri Lankan context, particularly in SMEs. Therefore, this study attempts to fill this gap in the finance literature addressing the research question, "How does the Pecking Order Theory and Life Cycle Theory of business financing appear to explain financial structure of SMEs?" The study is organized as follows; Section 2 is devoted to a review of the literature that examines how theories of capital structure can be applied in the context of small and medium size enterprises. Section 3 discusses the data and methodology while section 4 presents the results and discussions. The last section concludes the paper.

2. Review of Literature

2.1 Relevance of POT for SMEs

Initially, the POT required generally explaining the observed financing practices of large publicly traded corporations. However, soon after it was realized that the theory may also apply to the financing practices of non-publicly traded SMEs that might not have the possibility of acquiring an additional financing by issuing external equity finance. Scherr et al. (1990) consider the POT to be an appropriate description of SMEs' financing practices, because the 'Pecking order hypothesis is in keeping with the prior findings that debt is by far the largest source of external finance for small business. In addition, Holmes and Kent (1991) suggest that in SMEs, managers tend to be the business owners and they do not normally want to dilute their ownership claim. Hall et al. (2000), argue that the information asymmetry and agency problems arising between owner-managers and outside investors providing external finance which give rise to the POT are more likely to arise in dealings with small enterprises because of their "close" nature, i.e. being controlled by one person or a few, related people, and their having fewer disclosure requirements. Ang (1991) provides an alternative to this constrained POT, proposing a modified pecking order of financing preferences for SMEs⁴. Fama and French (2002) reveal a stain in the application of the POT to SMEs in those less levered non-payers of dividends are more profitable, which is consistent with the pecking order model. But less levered non-payers also have better investments. Helwage and Liang (1996) propose that the probability of obtaining outside fund is not related to a shortfall in internally generated funds, which is contrast with predictions of the pecking order theory. Further, they document that the firms accessing the capital market do not follow a pecking order when choosing the type of security to offer.

² The order of preferences reflects the relative costs of various financing options and that firms would prefer internal sources to costly external finance. The POT suggests that the use of external funds is very much related to profitability on the basis that SMEs, especially if these are not listed, will make use of internally generated funds as a first resort.

³ Small firm owners will try to meet their finance needs from a pecking order of first, their own money, second, short term borrowing third longer –term debt and least preferred to all from the introduction of new equity investors; which represents maximum intrusion (Cosh and Huger, 1994).

⁴ This involves new capital contributions from owners ranking behind internal finance, but in front of debt finance.

Shyan – Sunder and Myers (1999) conclude that the pecking order theory is an excellent first-order descriptor of corporate financing behavior in their sample of mature US firms. Frank and Goyal (2003) confirm the POT which is found among large firms in US. High growth firms consistently use less debt financing (Barclay and Smith, 2005).

Cassar and Holmes (2003) suggest that asset structure, profitability, and growth are important determinants of capital structure and financing in Australian firms. Lemmon and Zender (2004) empirically examined the impact of debt capacity considerations on financing decisions in a pecking order framework. Using a sample similar to Frank and Goyal (2003), they show that the pecking order theory is a good predictor of financing behavior. Bhaired and Lucey (2006) applied multiple regression analysis to test the applicability of POT to SMEs and found relationship between age, size, sector, growth opportunities and the means of collateral used to secure debt financing. Zoppa and McMahon (2002) examine the pecking order theory of business financing in 871 manufacturing SMEs and reported that the manufacturing SMEs follow pecking order financing behavior.

2.2 Life Cycle Theory and SME Financing Behavior

The most widely accepted view of the small business capital structure is that of Berger and Udell's (1998) financial Life Cycle Model⁵. Gregory et al. (2005) empirically test the financial growth cycle model for SMEs in US and their results partially support the LCT. Specifically, their results show that larger firms, as measured by total number of employees, are more likely to use public equity funding or long-term debt as opposed to insider financing. According to Timmons (2004), small, young firms tend to draw capital from internal sources, personal sources, informal investment and family, and friends. Bhaired and Lucey (2006) found that larger firms have a greater reliance on the fixed assets of the enterprise to overcome the problem of information asymmetry and to secure their debt financing in Irish firms.

2.3 Empirical Evidence on Industry and SME Financing Behavior

Many pieces of research have been conducted to examine the industry effect on the financing behavior of SMEs in various countries. Cressy and Olofsson (1997) state that manufacturing firms have large investment needs in machinery and 'hard' assets, and thus have greater access to fixed, collateralizable assets. Thus, they will have greater access to traditional loan financing. Michaelas et al. (1999) examined 3500 UK small firms representing ten industries and they suggest that in all industries examined the industry effect is more pronounced on short-term debt ratios compared to long-term debt ratios. The difference between the magnitude of the industry effect on short term and long term debt varies across industries. Hall et al. (2000) employ the same database and same number of businesses as Michaelas et al. (1999) and report similar results suggesting that the wholesale and retail trade industry on average uses very little long-term debt and that the education, health, and social work industry uses almost equal amount of short term and long term debt. Lopex- Garcia and Aybar – Arias (2000) examine 1000 Spanish SMEs and suggest a significant influence of industry on short-term debt revealing that firm size is an important influence on financial behavior. However, the industry is not a significant predictor of debt as a source of financing in Australian family businesses (Romano et al., 2001). Gibson (2001, 2002) in his study used five district clusters of SMEs based on key funding sources: trade credit, debt, bank loan, related person debt, other debt and equity and working owner equity and found that trade credit debt cluster is associated with the wholesale and the retail trade sectors. Johnsen and McMahon, (2005) study the cross-industry differences in SME financing behavior in Australian context by employing logistic regression model and document that industry does not simply process for one or more of other factors (age, size, profitability, growth, asset structure of firms) but is an important influence in its own right.

3. Research Methodology

3.1 Research Data

The study investigated the determinants of capital structure choices for the SMEs in Sri Lanka using 300 SMEs. The sample selection was based on a stratified random design with respect to size and urban or rural location. The firms were then interviewed by administering a self-structured questionnaire and all the firms included in the sample fulfill several criteria⁶. Thus, the final sample consisted of 300 SMEs and a survey was carried out. The survey questionnaire consists of two parts.

⁵ The model states that as firms become older and larger they will tend to use more outside sources of funds. On the other hand as firms become older, more experienced and more information ally transparent it likely to access to Capital Market.

⁶ The SMEs were all started before 2007 and none of them was started during the period 2007-2012, persons engaged is more than 2 and less than 250 and SMEs that are about to go bankrupt or have gone bankrupt were omitted.

Part I of the questionnaire consists of the identification of the firm and the respondents and further, the firms' characteristics, namely firm size, age, ownership, assets structure, Research & Development costs (growth of the firm), various capital structure measures; Long-term debt (LTD), short term debt (STD), internal finance (IF), external finance (EF), internal collateral (INCOL), external collateral (EXCOL), information asymmetry and industry in which the firm belongs to. Part II asks for the general opinion on financial instruments and respondents' concrete opinion on the importance and frequency of use of each particular financial instrument. In order to check the face validity a peer review was conducted with a number of academic experts in the field of SME research and with some statisticians as suggested by Irena and Korner (2008) and Bhaird and Lucey (2006). Next to it a pilot study was conducted with a 20 sample of enterprises from each industrial sector in order to ensure the content validity.

Variables

In order to formulate the hypotheses it was considered a number of firm-specific characteristics which include industry differences and owners' characteristics such as the need for control and financing preferences of SME owners. The study attempts to measure the effect of these attributes on the capital structure decisions of the sample firms. The main components of the financial structure and collateral were used as dependent variables.

Dependent Variables

Financing behavior was captured separately using five dependent variables: long-term debts, internal finance, external finance, internal collateral and external collateral. Following Bhaird and Lucey (2006) three different capital structure measures and two means of collaterals to examine the influences of seven explanatory variables on dependent variables were employed. SMEs in Sri Lanka are not publicly held and, therefore, not subject to the public disclosure regulations of Securities & Exchange Commission of Sri Lanka. Further, SMEs often do not have audited financial statements. Thus, SMEs in Sri Lanka is informationally opaque as predicted by Berger and Udell (1998). As a result of lack of information, data for each of the dependent variable could not be collected continuously over periods. Therefore, all dependent variables took the form of binary (whether the particular financial instrument or mean of collateral is used, 1 for "yes" and 0 for "no").

Independent Variables

Burger and Udell (1998) suggest that as firms become older and larger they will tend to use more outside sources of capital. Further, they contend that this effect will also occur as more financial information becomes available on a firm. Therefore, the researcher tries to measure the determinants of capital structure over time and the independent variables of interest were firm age, firm size, the growth opportunities, assets structure, ownership and information asymmetry (the amount of financial information available on the firm). The industry has an influence on financing decision of SMEs (Johnsen et al., 2005). Therefore, the study investigated the significance of the industry as an independent variable and used four dummy variables to capture the whole industrial sectors⁷. All the independent variables were defined as follows;

AGE = Age of the firm at the time of the survey (Three levels, less than 5, 5 to 14 and greater or equal to 15 years) (if < 10 "0", if ³ 10, "1")

SIZE = Number of employees at the time of the survey. Two levels, less than 10 or greater or equal to 10

OWN = Closely held ownership of firm (within the family) (Dichotomous dummy variable, yes = 1, no = 0)

ASSETS STRUCTURE = Collateral fixed assets as a percentage of total financing.

R&D = Amount invested as research and development costs. Dummy variables, (yes = 1, no = 0)

INFORMATION ASYMMETRY = The amount of financial information available on the firm (Dichotomous dummy variable, yes = 1, no = 0)

METAL = Metal manufacturing and engineering industry

FOOD = Food, beverages, and tobacco

TEXTILE = Textile, wearing, apparel and leather

WOOD = Wood, wood product and furniture

⁷ All the sectors were categorized into five main categories.

OTHER = Paper products, printing and publishing, petroleum, rubber and plastic, Nonmetallic and mineral products and others

3.3 Development of Hypotheses

A number of researchers have provided empirical evidence suggesting that the POT explains the capital structure choice of SMEs (Hogan and Hutson, 2005; Irena and Korner, 2008 and Bhaired and Lucey, 2006). Therefore, based on the theoretical and empirical evidence reviewed on pecking order theory and the Life cycle theory the researcher formulates the following hypotheses:

- H1: Age will be positively related with the use of internal equity.
- H2: Closely held family firms will have a higher reliance on internal equity.
- H3: There is a positive relation between firms with a greater amount of collateralizable fixed assets and long-term debt financing.
- H4: There is a negative relation between firms with a greater amount of collateralizable fixed assets and use of external equity.
- H5: Larger firms, as measured by the number of employees are more likely to use long-term debts.
- H6: Use of external equity will be positively related to growth options.
- H7: Use of internal equity will be negatively related to growth options.
- H8: Use of external equity will be higher in younger firms.
- H9: Age and use of long-term debt are positively related.
- H10: Younger firms will have a greater reliance on the personal assets of the SME owner to secure debt financing.
- H11: Larger firms will rely on the assets of the firm as collateral for debt financing.
- H12: Collateral provided by the fixed assets of the business will be positively related to firm size.
- H13: Collateral provided by the personal assets of the SME owner will be negatively related with the firm size.
- H14: Collateral provided by the fixed assets of the business will be positively related with firms with a greater amount of collateralizable fixed assets.
- H15: Collateral provided by the fixed assets of the business will be positively related with firms with a greater amount of intangible assets (growth options).
- H16: SMEs in certain industries are more likely to use internal finance.

3.4 Empirical Model and Estimation Procedure

The study attempts to explore whether the Pecking Order Theory and Life Cycle Theory are applied to the capital structure decisions of SMEs. The analytical model for this study, derived from the prior research reviewed earlier, is as illustrated in equation 1. The model include, represents age, size, ownership, asset structure, information asymmetry, growth options and industry, are likely to influence the capital structures of SMEs. The binary logistic model takes the following verbal form, Dependent variable (0,1) = constant+ AGE + SIZE + AS + IAS + OWN+ R&D+INDUSTRY The key study relationship for the same can be represented in the following form,

$$\log it(P_i) = \log\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 Age1_i + \beta_2 Age2_i + \beta_3 Size_i + \beta_4 AS_i + \beta_5 IAS_i + \beta_6 OWN_i + \beta_7 R \& D_i + \beta_8 IND1_i + \beta_9 IND2_i + \beta_{10} IND3_i + \beta_{11} IND4_i \rightarrow (1)$$

Where;

- Age1 = 1 if Age of the firm < 5
0 otherwise
- Age2 = 1 if Age of the firm is 5 -14
0 otherwise
- Size = 1 if Size of the firm ≥10
0 otherwise
- Own = 1 family
0 otherwise
- R&D = 1 if the firm spend money for R&D
0 otherwise

IND₁ = 1 if the firm is METAL
0 otherwise

IND₂ = 1 if the firm is FOOD
0 otherwise

IND₂ = 1 if the firm is TEXTILE
0 otherwise

IND₃ = 1 if the firm is WOOD

The analytical tool used for this study allows for a binary dependent variable and the testing of the hypotheses formulated applying logistic regression analysis, including the linear probability model. Linear functions are inherently unbounded while probabilities are bounded by 0 and 1. This makes the logit analysis, the most obvious candidates for the regression analysis of dichotomous variables. This model always returns values between 0 and 1.

4. Results and Discussion

4.1 Long-term Debt Finance and Independent Variables

This study empirically tests the widely acclaimed Berger and Udell (1998) Life Cycle Model and Myers (1984) Pecking Order Hypothesis of business financing. The first binary logistic regression modeling undertaken employed a dichotomous dependent variable indicating whether the long-term debts is used or not by the SMEs in the sample. Simple logistic regressions were run for each independent variable separately. Results of the insignificant variables are not presented here for brevity. The results from this modeling effort are represented in Table 01.

Table 01: Parameter Estimates, Standard Errors, P Values, Exp(B), Probability with logistic regression model for the Influencing Factors for using Long-terms Debt

Variable	Model Parameter	S.E.	P Value	Exp(β)	Probability	Reference Category
Logit(P _i) = β ₀ + β ₁ ^{<5} Age + β ₂ ⁵⁻¹⁰ Age						
Age	β ₀ = -0.575	0.295	0.051	0.563	36	≥ 15 Age group
	β ₁ ^{<5} = -0.361	0.395	0.362	0.697	28	
	β ₂ ⁵⁻¹⁰ = 0.449	0.371	0.103	1.566	47	
Logit(P _i) = β ₀ + β ₁ ^{≥10} Size						
Size	β ₀ = -0.591	0.158	0	0.554	36	< 10 Size
	β ₁ ^{≥10} = 0.591	0.423	0.102	1.806	50	
Logit(P _i) = β ₀ + β ₁ Asset Structure						
Asset Structure (fixed assets as a percentage of total assets)	β ₀ = -1.385	0.667	0.038	0.250	20	
	β ₁ = 0.011	0.008	0.104	1.011	21	
Logit(P _i) = β ₀ + β ₁ ^{<5} Age + β ₂ ⁵⁻¹⁰ Age + β ₃ Asset Structure + β ₄ ^{≥10} Size						
Age, Asset Structure, Size	β ₀ = -1.405	0.750	0.061	0.245	20	Age > 15, Asset Structure, high proportions Size < 10
	β ₂ ⁵⁻¹⁵ = 0.453	0.379	0.232	1.572	40	
	β ₁ ^{<5} = -0.273	0.404	0.499	0.761		
	β ₃ AS = 0.009	0.008	0.270	1.009		
	β ₄ ^{≥10} = 0.529	0.433	0.222	1.697		

The results show that younger firms whose age is between 5-15 years are more likely to use long-term debts with a 47% probability of using long-term debts. This is statistically significant and provides a support for H9. Larger firms, as measured by employees, are more likely to use long-term debts. SMEs with more than 10 employees (larger firms) have a 50% probability of using long-term debts which are statistically significant providing a great support for H5. SMEs with higher proportion of fixed assets have a 21% probability of using long-term debts than other SMEs who do not possess higher proportion of fixed assets, because they tend to access to traditional loan capital with a greater amount of collateralizable fixed assets. This finding is statistically significant and provides a greater support for H3. The multiple logistic regression model was fitted with significant variables and is statistically significant and includes three variables associated with the use of long-term loans. There is a 40% probability of using long-term loans by large size, younger SMEs with a greater amount of collateralizable fixed assets than other SMEs whose size is small and older with a less amount of collateralizable fixed assets with adjusting for other factors.

4.2 Internal Finance and Independent Variables

The second logistic regression model (Table 02) tests the use of internal finance (funds from family, own money, funds from friends and relatives) with a number of independent variables⁸.

Table 02: Parameter Estimates, Standard Errors, P Values, Exp(B), Probability with logistic regression model for the Influencing Factors for using Internal Finance

Variable	Model Parameter	S.E.	P Value	Exp(β)	Probability	Reference Category
$Logit(P_i) = \beta_0 + \beta_1$ Research & Development cost						
Research & Development cost	$\beta_0 = 0.856$	0.205	0	2.353	70	No
	$\beta_1^{Yes} = 0.869$	0.364	0.017	2.386	85	
$Logit(P_i) = \beta_0 + \beta_1$ Metal + β_2 Food + β_3 Textile + β_4 Wood						
Industry	$\beta_0 = 1.41$	0.243	0	4.095	80	Other Industries
	$\beta_1^{Metal} = 0.264$	0.675	0.696	1.302	84	
	$\beta_2^{Food} = 0.295$	0.806	0.715	1.343	85	
	$\beta_3^{Textile} = -0.668$	0.455	0.142	0.513	68	
	$\beta_4^{Wood} = -0.917$	0.454	0.043	0.4	62	
$Logit(P_i) = \beta_0 + \beta_1$ Metal + β_2 Food + β_3 Textile + β_4 Wood + β_5 Research & Development cost						
Industry, Research & Development	$\beta_0 = 0.415$	0.719	0.564	1.515	60	Other Industries, Research & Development Cost - No
	$\beta_1^{Metal} = 0.415$	0.687	0.546	1.485		
	$\beta_2^{Food} = -0.947$	0.475	0.046	0.355	60	
	$\beta_3^{Textile} = 0.573$	0.819	0.484	1.648		
	$\beta_4^{Wood} = -0.663$	0.468	0.157	0.496		
	$\beta_5^{R\&D\ Yes} = 1.043$	0.379	0.006	2.837	68	

The simple logistic regression results show that the firms with a high proportion of spending on research and development (R & D) have 85% probability of using internal finance to meet their funding needs while other SMEs who do not spend for R & D have a 70% probability. This finding is statistically significant and provides a great support for H7. On the other hand, firms with a higher proportion of fixed assets, namely METAL and WOOD product firms are significantly more likely to use (the probability 62% and 68% respectively) internal finance, opposed to the firms engage in other industries suggesting support for H16. The results of the fitted multiple logistic regression show three significant variables associated with the use of internal finance to fund their investments needs. Firms operate in METAL industry and spend money on R & D or more growth firms have a 60% probability of using internal finance. SMEs that spend money on R & D and operate in the WOOD products industry have a 68% probability of using internal funds.

4.3 External Finance and Independent Variables

The model 3 (Table 03) tests the probability of using external finance with independent variables. It is found that the firm age is a predictor of capital structure decisions and had a strong relationship as proposed by Berger and Udell (1998). The results imply that younger firms as opposed to older firms are more likely to use external funds (eg. trade credits, funds from outsiders and outside debts.) as older firms are no longer demonstrating growth and are less likely to attract outside capital. The finding is statistically significant and the probability of using external finance is 66% in younger firms, hence, we accept H8. The results also reveal that closely held firms (OWN1) have a 58% probability of using external funds which give a contradictory result as opposed to the hypothesized result, hence we reject H2.

⁸ The model (simple logistic regression) estimates the probability of using internal finance with each of the independent variables separately. Finally, a separate multiple logistic regression was run including all significant independent variables.

Table 03: Parameter Estimates, Standard Errors, P Values, Exp(B), Probability with logistic regression model for the Influencing Factors for using External Finance

Variable	Model Parameter	S.E.	P Value	Exp(β)	Probability	Reference Category
$Logit(P_i) = \beta_0 + \beta_1^{<5}_{Age} + \beta_2^{5-10}_{Age}$						
Age	$\beta_0 = 0.08$	0.283	0.777	1.083	52	<5 Age Group
	$\beta_1^{<5} = -0.335$	0.371	0.366	0.715	44	
	$\beta_2^{5-10} = -0.575$	0.369	0.101	1.778	66	
$Logit(P_i) = \beta_0 + \beta_1^{Ownership}$						
Ownership	$\beta_0 = -0.916$	0.483	0.058	0.4	29	No
	$\beta_1^{Yes} = 1.22$	0.506	0.016	3.386	58	
$Logit(P_i) = \beta_0 + \beta_1^{Ownership} + \beta_2^{>5}_{Age} + \beta_3^{5-10}_{Age}$						
Ownership, Age group	$\beta_0 = -1.064$	0.563	0.059	0.345		<5 Age Group
	$\beta_1^{Ownership} = 1.236$	0.517	0.017	3.44	69	
	$\beta_2^{>5}_{Age} = -0.291$	0.376	0.439	0.747		
	$\beta_3^{5-10}_{Age} = 0.62$	0.376	0.099	1.86	26	

The results of multiple logistic regression which examines the probability of using external funds with age and ownership of SMEs, show statistically significant relationships. Younger and closely held family firms have 69% probability of accessing external funds while start-up and older firms which do not operate by family members have 26% probability of using external funds.

4.4. Internal Collateral and Independent Variables

Model 4 investigates the association between the use of fixed assets of the business to secure debt financing (INCOL) and the independent variables. The summary statistics of the fitted simple and multiple logistic regression is reported in Table 04. The results reveal that larger firms, as measured by the number of employees, are more likely to use firm's fixed assets as collaterals to secure debt financing providing support for H11.

Table 04: Parameter Estimates, Standard Errors, P Values, Exp(B), Probability with logistic regression model for the Influencing Factors for using Internal Collateral

Variable	Model Parameter	S.E.	P Value	Exp(β)	Probability	Reference Category
$Logit(P_i) = \beta_0 + \beta_1^{>=10}_{Size}$						
Size	$\beta_0 = -1.785$	0.216	0	0.168	14	<10 Size
	$\beta_1^{<10} = 0.787$	0.492	0.10	2.196	27	
$Logit(P_i) = \beta_0 + \beta_1^{Research \& Development \ cost}$						
Research & Development	$\beta_0 = -2.05$	0.295	0	0.129	11	No
	$\beta_1^{Yes} = 0.79$	0.393	0.044	2.203	22	
$Logit(P_i) = \beta_0 + \beta_1^{Information \ Asymmetry}$						
Information Asymmetry	$\beta_0 = -2.079$	0.294	0	0.125	11	No
	$\beta_1^{Yes} = 0.865$	0.393	0.028	2.375	23	
$Logit(P_i) = \beta_0 + \beta_1^{Metal} + \beta_2^{Food} + \beta_3^{Textile} + \beta_4^{Wood}$						
Industry	$\beta_0 = -1.814$	0.278	0	0.163	14	Other Industry
	$\beta_1^{Metal} = -0.346$	0.670	0.606	0.708	10	
	$\beta_2^{Food} = 0.784$	0.591	0.102	2.19	26	
	$\beta_3^{Textile} = 0.109$	0.818	0.894	1.115	15	
	$\beta_4^{Wood} = 0.582$	0.512	0.256	1.789	23	
$Logit(P_i) = \beta_0 + \beta_1^{Metal} + \beta_2^{Food} + \beta_3^{Textile} + \beta_4^{Wood} + \beta_5^{Research \& Development \ cost} + \beta_6^{Information \ Asymmetric}$						
Industry, size, research & development, Information asymmetry	$\beta_0 = -2.6$	0.423	0	0.074	7	Other Industry
	$\beta_1^{Metal} = -0.358$	0.688	0.603	0.699		
	$\beta_2^{Food} = 0.977$	0.626	0.103	2.658	60	
	$\beta_3^{Textile} = 0.144$	0.893	0.872	1.155		
	$\beta_4^{Wood} = 0.472$	0.530	0.374	1.603		
	$\beta_5^{Size} = 0.68$	0.537	0.206	1.973		
	$\beta_6^{R\&D} = 0.64$	0.428	0.101	1.897		
	$\beta_7^{IAS} = 0.732$	0.428	0.088	2.079		

More growth firms are more likely to use internal collaterals as hypothesized and the probability is 22% as opposed to 11% probability of fewer growth firms, suggesting a support for H15. More informationally transparent SMEs have a higher probability of 23% of using fixed assets of the business as collaterals to secure debts whereas less informationally transparent firms demonstrate 11% probability. This finding is statistically significant and provides a strong support for H14.

An SME being in the FOOD product industry is more likely to use fixed assets of the business as collaterals compared to other industries. The multiple logistic regression model fitted with four significant variables show strong relationships between the use of internal collateral and the four independent variables namely, size, R & D, IAS and FOOD products industry.

More informally transparent, large size, high growth SMEs who operate in FOOD products have a 60% probability of using firm's fixed assets as collaterals to secure debt financing while other firms, fewer growth firms with small size, operate in METAL, TEXTILE, WOOD and OTHERs have a 9% probability of using fixed assets of the firm as collaterals.

4.5 External Collaterals and Independent Variables

The model 6 examines the relationship between the personal assets of the SME owner provided as collateral for firm debt and the independent variables. The summary statistics of the fitted regression is shown in Table 05. The results show that large size SMEs are more likely to use personal assets of the owner as collaterals to secure loan financing with a statistically significant association. This result is contradictory with the hypothesized sign of negative relation hence; there is no evidence to accept H13. This suggests that even firms have adequate collateralizable assets they provide personal assets to secure debt financing. SMEs engage in FOOD and TEXTILE industries are more likely to use external collaterals to secure debts which are also statistically significant.

Table 05: Parameter Estimates, Standard Errors, P Values, Exp (B), Probability with logistic regression model for the Influencing Factors for using External Collaterals

Variable	Model Parameter	S.E.	P Value	Exp(β)	Probability	Reference Category
Logit(P_i) = β₀ + β₁^{≥10}Size						
Size	β ₀ = -1.882	0.224	0	0.152	13	<10 Size
	β ₁ ^{<10} = 1.071	0.48	0.026	2.918	31	
Logit(P_i) = β₀ + β₁^{Metal} + β₂^{Food} + β₃^{Textile} + β₄^{Wood}						
Industry	β ₀ = -1.978	0.296	0	0.138	12	Other Industry
	β ₁ ^{Metal} = -0.624	0.79	0.43	0.536	7	
	β ₂ ^{Food} = 0.949	0.599	0.103	2.582	26	
	β ₃ ^{Textile} = 1.508	0.642	0.019	4.519	38	
	β ₄ ^{Wood} = 0.551	0.542	0.31	1.735	19	
Logit(P_i) = β₀ + β₁^{Metal} + β₂^{Food} + β₃^{Textile} + β₄^{Wood} + β₅^{≥10}Size						
Industry, size	β ₀ = -2.177	0.284	0	0.126	11	Other industry
	β ₁ ^{Metal} = -0.758	0.456	0.523	0.542		
	β ₂ ^{Food} = 0.948	0.599	0.104	2.319	40	
	β ₃ ^{Textile} = 1.371	0.66	0.038	3.545	50	
	β ₄ ^{Wood} = 0.588	0.537	0.274	1.618		
	β ₅ ^{≥10} = 0.83	0.512	0.105	2.281		

The results of the multiple logistic regression reveal important determinants of the firms' use of external collaterals for debt financing. An SME being in the food products industry with large size which employs 10 or more employees have a 40% probability of using personal assets as collaterals while SMEs which operate in TEXTILE industry with large size have a much higher probability of 50%. On the other hand, SMEs in METAL, WOOD and OTHER industries with small size have an 11% probability of using owners' personal assets as collaterals.

4.6 Descriptive Analysis

In order to provide further light on the findings from the logistic regression analysis a qualitative analysis was conducted. The summary of answers of the respondents' to a number of questions and statements which were presented in three point Likert scales is reported in Table 06.

4.6.1 Financing Preferences of the Owners

The first question of the second part of the questionnaire asked a number of direct statements to test whether the financing preferences follow a pecking order. Out of total 88% of the respondents reported a clear preference for using internal cash flows/ retained profits to fund their investment needs. A number of comments on completed survey forms are reiterated as follows; "Most of our financial needs are met out of retained profits" "We are self financing and requiring no debt or outside sources. Almost all the firms in the sample are privately owned and sole traders and partnership firms.

Among all respondents 95% the firms demonstrate an aversion not to convert their businesses to company form of organizations. The reason that the respondents commonly cited for the observed financing preferences of SME owners is the desire for independence and to maintain control of the enterprise.

They have stated that they wished to retain the ownership of the business for the founders." The answers to the question of future funding requirements revealed that 70% of respondents sought funding to facilitate expansion, while, 18% required additional capital for working capital. The remaining 12% required additional funding for a new venture. This finding suggests that where additional funds are required, their main purpose is for investment in existing and new assets.

Table 06: Financing Preferences of Respondents N= 300

	Agree	Neither Agree or Disagree	Disagree
1. Prefer to use retained profits as much as possible	88%	6%	6%
2. Long-term bank loans would suit by investment needs	55%	10%	35%
3. Additional funding would suit my;			
- Investment needs	70%	-	-
- Working capital needs	18%	-	-
- For starting new ventures	12%	-	-
4. Prefer to convert into company form of organizations	-	5%	95%

Source: Survey Data

Almost all the respondents stated that bank loans would suit their investment needs. There are significant sectoral differences in responses to this statement i.e., firms in the METAL and WOOD industry generally prefer to use internal cash flows in the first instance followed by debts. The other industries appear to deviate from this pecking order of financing.

4.6.2 Information Asymmetries

The respondents' perceptions on the questions relating to information asymmetry in the debt market are shown in Table 07. Almost 55% of respondents are with the perception that banks understand their businesses very well. On the other hand 92% of respondents state that banks are willing to provide overdraft facilities to their businesses. Almost 87% of respondents perceive that financial institutions insist on collateral to secure debt financing.

Table 07: Respondents Perceptions on Sources of Finance

	Agree	Neither Agree or Disagree	Disagree
1. Banks understand my business well	55%	11%	44%
2. Banks are willing to provide overdraft facilities	92%	2%	6%
3. Loan providers insist on collateral	87%	5%	8%

Source: Survey Data

5. Conclusion

This study analyzed the capital structure and the means of collateral on which debt financing is succeeded, to test the applicability of POT and LCT of SME financing in Sri Lanka. The simple and multiple logistic regression results show strong support for the POT and LCT. Enterprise size, as measured by total employment, is positively related with the use of LTD. The implication is that the larger an SME in terms of employment, the more likely it will depend upon long-term debt financing. This suggests that larger firms tend to acquire loans, decrease information asymmetry providing fixed assets as collaterals. Further, it can be concluded that the younger an SME is, and therefore, the less time it has had to become self-sufficient through reinvestment of profits, the more likely it will need to depend upon long-term debt financing for its assets and activities. The higher the proportion of fixed assets held by an SME, the more likely it will be that it depends upon long-term debt financing for its assets. In overall the findings appear to be consistent with the POT of business financing (Myers, 1984).

Since the large size younger firms have become large enough to accumulate tangible fixed assets by eliminating informal asymmetry, they tend to acquire loan capital providing fixed assets as collaterals. When they become older, they accumulate more profits by reinvesting and their borrowing requirements decline over time as retained earnings are accumulated. So, this is consistent with LCT of Berger and Udell (1998). On the other hand, these findings are consistent with the findings by Bhaird and Lucey (2006), Cassar and Holmes (2003), Michaelas et al. (1999).

The ownership structure is negatively associated with external finance and positively related to internal finance, confirming the well-recognized desire for independence and control of closely held family firms. This evidence is consistent with POT and findings by Bhaird and Lucey (2006). High growth firms use higher levels of internal equity suggesting that these firms typically have sufficient internal finance to meet their investment needs. This is inconsistent with the findings of Cressy and Olofsson (1997) that the owners of firms seeking to grow are less averse to ceding control than those not seeking growth. Younger firms are more likely to use external finance since those accumulate tangible fixed assets over time and they can show a track record. Thus, they can overcome asymmetric information and can access to loan capital and trade credit etc. Means of collateral to secure debt financing shows that larger size, high growth firms with information asymmetry have a greater reliance on the fixed assets of the business to overcome the problem of information asymmetry and to secure debt financing which shows a consistent result with Bhaird and Lucey (2006). Large size SMEs are more likely to provide personal assets as collaterals even they have adequate business assets to secure debt financing. SMEs in the FOOD industry have a greater reliance on personal assets while firms in the TEXTILE industry have a greater reliance on business assets to provide as collaterals to secure loan capital. Being the SMEs in METAL and WOOD industries are less likely to use internal finance while the SME in TEXTILE industry is more likely to use long-term debts. All these firms possess substantial fixed assets to provide as collaterals to pledge as securities. The qualitative analysis reveals that their motives for financing preferences, first for internal and next for debt financing, are a desire for independence and control and a perception of a lack of information asymmetries in debt markets. These financing preferences of SME owners follow the Pecking Order Theory (POT) as proposed by Myers (1984). On the other hand this finding is consistent with Berger and Udell (1998), who propose that financial, needs and options change as the business growth, gains further experiences, and become less informationally opaque.

Implications

The findings of this research will give practical implications for policy makers and SME owners/ managers. SMEs owners/ managers can operate their businesses by targeting the optimum debt/ equity levels at each stage of their growth. Information asymmetry is high at the infant stage and two years after the commencement of the business internal sources of funds are possible. Firms become larger, older and more informationally transparent their financing options become more attractive and firms should gain access to capital market or long-term debt financing. Therefore, at this stage of growth they should try to accumulate adequate retained earnings in order to finance their investment needs or they should access to raise long-term loans since the information asymmetry is disappeared at this stage. The policy makers should provide an environment in which owner/ managers are able to retain sufficient profits in their businesses to fund the largest possible number of economically viable projects. Further, the fiscal policies should concentrate on providing incentives to retain profits and encourage investments in growth-oriented strategies.

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